

CLAIMS

1. (Currently amended) ~~Method~~ A method of keying, in a space presenting two spatial dimensions and one temporal dimension, a signal S measured in positions U subject to an uncertainty, from a set of N signals measured in determined positions, the N + 1 signals having their temporal origin in a same plane, ~~the said method involving:~~ comprising the steps of

re-sampling the N + 1 signals in order to place them all in an identical sampling range ; ;

filtering the signal S in order to place it in a range of frequencies that is identical to that of the N signals ; ;

~~and wherein the method also involves:~~

defining for each position U associated with the measurements of the signal S a same neighbourhood of places V in the spatio-temporal space centred on the position U ; ;

producing a layered neural network RN^V for each location V in the neighbourhood of U, each network having an entry vector of dimension N associated with the measurements of the N signals and a scalar exit associated with a measurement of the signal S ; ;

for each neural network RN^V , defining a learning set such that the entries are the collection of all the vectors of measurements of the N signals situated at the locations V and the exits are the collection of the values of the signal S at the positions U for all the positions U ; ;

fixing a predetermined number of iterations N_{it} for all the neural networks and launching the learning phases of all the networks ; ;

for each neural network RN^v , calculating the value of the integral $\pm \sum^v$ of the function giving the error committed by the network at each iteration, from iteration 1 to iteration Nit ;

for each surface spatial position V_k of the neighbourhood with coordinates $(X_k, Y_k, T_0, x_k, y_k, t_0)$, selecting in the time dimension the pair of locations $V1_k(x_k, y_k, t_1)$, $V2_k(x_k, y_k, t_2)$, of the neighbourhood which correspond to the two smallest local minima of the two integrals $(\sum^{v1}_k, \sum^{v2}_k)$;

for each surface spatial position V_k of the neighbourhood, retaining from among the two positions $V1_k(x_k, y_k, t_1)$, $V2_k(x_k, y_k, t_2)$ the position V_m , for which the signal estimated by the respective neural networks RN^{v1}_k and RN^{v2}_k presents a maximum variance ; and

choosing from among the positions V_m the position V_{cal} for which the integral \sum^v_m is minimum.

2. (Currently amended) ~~Method~~ The method according to claim 1, wherein the use of the neural networks comprises:

defining for each position U associated with the measurements of the signal S a same neighbourhood of places V in the spatio-temporal space centred on the position U ;

producing a layered neural network RN^v for each location V in the neighbourhood of U. each network having an entry vector of dimension $N \times M$ associated with the measurements on a time window of size M centred on V of the N signals and a scalar exit associated with a value of the signal S ;

for each neural network, defining a learning set such that the entries are the collection of all the vectors of measurements taken in a time window of size M centred on V for the N signals and the exits are the collection of the values of the signal S at the positions U for all the positions U ;

fixing a predetermined number of iterations N_{it} for all the neural networks and launching the learning phases of all the networks ;

for each neural network RN^v , calculating the value of the integral $\frac{1}{V} \sum^v$ of the function giving the error committed by the network at each iteration, from iteration 1 to iteration N_{it} ;

for each surface spatial position V_k of the neighbourhood with coordinates (X_k, Y_k, t_0) , selecting in the time dimension the pair of locations $V1_k(X_k, Y_k, t_1)$, $V2_k(X_k, Y_k, t_2)$, of the neighbourhood which correspond to the two smallest local minima of the two integrals $(\frac{1}{V} \sum^v_{k1}, \frac{1}{V} \sum^v_{k2})$;

for each surface spatial position V_k of the neighbourhood, retaining from among the two positions $V1_k(X_k, Y_k, t_1)$, $V2_k(X_k, Y_k, t_2)$ the position V_m , for which the signal estimated by the respective neural networks RN^{v1}_k and RN^{v2}_k presents a maximum variance ; and

choosing from among the V_m positions the position V_{eal} for which the integral $\frac{1}{V_{eal}} \sum^v_m$ is minimum.